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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/672,991

09/26/2003

Edward F. Stephens

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9761

30223

7590

12/21/2005

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EXAMINER

KEBEDE, BROOK

ART UNIT

PAPER NUMBER

2823

DATE MAILED: 12/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Application No.

10/672.991

<b>Applicant(s)</b>
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STEPHENS, EDWARD F.

Examiner

## Brook Kebede

<b>Art Unit</b>
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2823

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2003.  
2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 73-91 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 73-91 is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/22/03.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Response to Amendment*

1. The preliminary amendment filed under 37 CFR 1.53(b) on September 26, 2003 is acknowledged and the amendment have been placed in the file.

### *Status of the Claims*

2. Claims 73-91 are now pending in the application.

### *Specification*

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: --The method of manufacturing a leaser diode package--.

### *Claim Objections*

4. Claims 73, 78, 80, 83, 86, 89 are objected to because of the following informalities:

Claim 73 recites the limitation "said substrate" in line 6. However, the recited claim lacks proper antecedent basis.

It is respectfully suggested that changing the above limitation to --**said electrically insulative substrate**-- in order to maintain proper antecedent basis and consistency.

Similar changes also requires in claims 73, 73, 78, 80, 83, 86, 89 and throughout.

Claim 73 recited a limitation "providing a heat sink having upper and lower portions, **said heat sink having a width that is approximately said heat sink width that is less than height**" in lines 4-5

However, the limitation **“said heat sink having a width that is approximately said heat sink width that is less than height”** is some how confusing because the width and the height comparison is not particularly claimed.

As suggestion, the above limitation can be modified as **--wherein said heat sink having height and width and wherein said width of said heat sink is approximately less than that of said height of said heat sink--**.

Claim 73 recited a limitation **“providing an electrically insulative substrate, said substrate having a width that approximately said heat sink width”** in lines 6-7.

As suggestion, the above limitation can be modified as **– wherein said electrically insulating substrate having a width that is approximately equal to said width of said heat sink --**.

Applicants’ cooperation is requested in reviewing the claims structure to ensure proper claim construction and to correct any subsequently discovered instances of claim language noncompliance. See *Morton International Inc.*, 28USPQ2d 1190, 1195 (CAFC, 1993).

***Allowable Subject Matter***

5. Claims 73-91 are allowed over prior art of record.

6. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record neither anticipates nor renders obvious the claimed subject matter of the instant application as a whole either taken alone or in combination, in particular, prior art of record does not teach **“providing an electrically insulative substrate, said substrate having a width that is approximately said heat sink width; soldering said laser diode to said upper portion of said heat sink so as to leave a surface of said laser diode opposing said heat sink exposed; and**

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soldering said insulative substrate to said lower portion of said heat sink,” as recited in claim 73, “providing a plurality of electrically insulative substrates; developing each of said plurality of individual laser diode packages by, soldering one of said laser diodes to one of said heat sinks at a location adjacent to said uppermost surface so as to leave a surface of said laser diode opposing said heat sink exposed, and soldering one of said insulative substrates to said bottommost surface of said heat sink; and for each of said plurality of individual laser diode packages, soldering said exposed surface of said laser diode to a heat sink of an adjacent laser diode package,” as recited in claim 83, and “attaching an electrically insulative substrate to said bottommost surface of said heat sink, said electrically insulative substrate being associated with only one heat sink and for electrically insulating said heat sink from a metallic heat sinking structure to be located below said individual laser diode package; and soldering said laser diode in each of said individual laser diode packages to a heat sink of an adjacent package,” as recited in claim 90 respectively.

Claims 74-82, 84-89 and 91 are also allowed as being directly or indirectly dependent of the allowed independent base claim.

Re claims 73, 73 and 90, Hoden et al. (US/6,295,307) disclose method for forming a laser diode assembly the method includes providing laser diode bars and heat sink. However, Hoden et al. fail to disclose “providing an electrically insulative substrate, said substrate having a width that is approximately said heat sink width; soldering said laser diode to said upper portion of said heat sink so as to leave a surface of said laser diode opposing said heat sink exposed; and soldering said insulative substrate to said lower portion of said heat sink,” as recited in claim 73, “providing a plurality of electrically insulative substrates; developing each of said plurality of individual laser diode packages by, soldering one of said laser diodes to one of said heat sinks at

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a location adjacent to said uppermost surface so as to leave a surface of said laser diode opposing said heat sink exposed, and soldering one of said insulative substrates to said bottommost surface of said heat sink; and for each of said plurality of individual laser diode packages, soldering said exposed surface of said laser diode to a heat sink of an adjacent laser diode package,” as recited in claim 83, and “attaching an electrically insulative substrate to said bottommost surface of said heat sink, said electrically insulative substrate being associated with only one heat sink and for electrically insulating said heat sink from a metallic heat sinking structure to be located below said individual laser diode package; and soldering said laser diode in each of said individual laser diode packages to a heat sink of an adjacent package,” as recited in claim 90 respectively.

Hung (US/5,835,515) also discloses method of forming high power semiconductor laser diode array assembly the method includes providing the heat sink fin and forming a laser diode array in the heat sink fin. However, Hung does not specifically disclose the aforementioned claimed limitations as recited in claims 73, 83 and 90 respectively.

### ***Conclusion***

7. This application is in condition for allowance except for the following formal matters:

The formal matter(s) that set forth in Paragraphs 2 and 3 above should be addressed by applicant(s) prior pass the instant application to issue.

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

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*Correspondence*

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brook Kebede whose telephone number is (571) 272-1862. The examiner can normally be reached on 8-5 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S. Smith can be reached on (571) 272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Brook Kebede  
Primary Examiner  
Art Unit 2823

BK  
December 16, 2005